

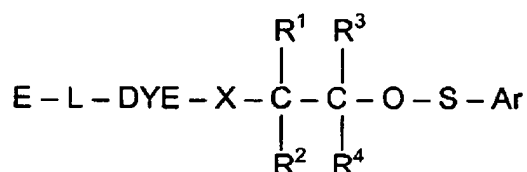
Listing of Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

1-11. (CANCELED)

12. (CURRENTLY AMENDED) A method of performing a phototherapeutic procedure which comprises the steps of:

(a) administering to a target tissue in an animal an effective amount of sulfenate photosensitizers in a pharmaceutically acceptable carrier, the sulfenates having the formula



wherein E is a targeting [[molecule]] univalent radical selected from the group consisting of somatostatin receptor binding molecules, heat sensitive bacterioendotoxin receptor binding molecules, neurotensin receptor binding molecules, bombesin receptor binding molecules, cholecystekinin receptor binding molecules, steroid receptor binding molecules, and carbohydrate receptor binding molecules, and dihydroxyindolecarboxylic acid; L and X are independently selected from the group consisting of $-(\text{R}^5)\text{NOC}-$, $-(\text{R}^5)\text{NOCCH}_2\text{O}-$, $-(\text{R}^5)\text{NOCCH}_2\text{CH}_2\text{O}-$, $-\text{OCN}(\text{R}^5)-$, $-\text{HNC}(=\text{S})\text{NH}-$, and $\text{HNC}(=\text{O})\text{NH}-$; DYE is an aromatic or a heteroaromatic radical of cyanines which are conjugated azamethine polyene systems containing a cationic nitrogen atom at one end and a neutral, tertiary nitrogen at the other end; R^1 to R^5 are

independently selected from the group comprising hydrogen, C1-C10 alkyl, C5-C10 aryl, C1-C10 polyhydroxyalkyl, and C1-C10 polyalkoxyalkyl; and Ar is an aromatic or heteroaromatic radical of benzenes, naphthalenes, naphthoquinones, diphenylmethanes, fluorenes, anthracenes, anthraquinones, phenanthrenes, tetracenes, naphthacenediones, pyridines, quinolines, isoquinolines, indoles, isoindoles, pyrroles, imidazoles, oxazoles, thiazoles, pyrazoles, pyrazines, purines, benzimidazoles, furans, benzofurans, dibenzofurans, carbazoles, acridines, acridones, phenanthridines, thiophenes, benzothiophenes, dibenzothiophenes, xanthenes, xanthones, flavones, coumarins, or anthacylines; and

(b) exposing said target tissues with the light of wavelength between 300 and 950 nm with sufficient power and fluence rate to cause necrosis or apoptosis of the said target tissue.

13. (ORIGINAL) The method of claim 12 further comprising the step of allowing said photosensitizer to accumulate in said target tissue.

14. (CURRENTLY AMENDED) The method of claim 12, wherein E is a univalent radical selected from the group consisting of somatostatin receptor binding molecules, heat sensitive bacterioendotoxin receptor binding molecules, neurotensin receptor binding molecules, bombesin receptor binding molecules, cholecystekinin receptor binding molecules, and steroid receptor binding molecules; L and X are independently selected from the group consisting of

-(R⁵)NOC-, and -(R⁵)NOCCH₂O -; DYE is a cyanine; R¹ to R⁵ are independently selected from the group consisting of hydrogen, C1-C10 alkyl, C5-C10 aryl, and C1-C10 polyhydroxyalkyl; and Ar is an aromatic benzene radical.

15-22. CANCELED.

23. (CURRENTLY AMENDED) The method of claim 12 wherein E is a univalent radical associated with a biomolecule selected from the group consisting of hormones, amino acids, peptides, peptidomimetics, proteins, nucleosides, nucleotides, nucleic acids, enzymes, carbohydrates, glycomimetics, lipids, albumins, monoclonal antibodies, polyclonal antibodies, receptors, inclusion compounds, receptor binding molecules, polyaminoacids, polyols, polyamines, polyacids, oligonucleotides, aborols, dendrimers, and aptamers.

24. (ORIGINAL) The method of claim 23 wherein the effective amount of the sulfenate photosensitizer administered to the target tissue is in a range of about 0.1 mg/kg body weight to about 500 mg/kg body weight.

25. (ORIGINAL) The method of claim 24 wherein the effective amount of the sulfenate photosensitizer administered to the target tissue is in a range of about 0.5 mg/kg body weight to about 2 mg/kg body weight.

26. (ORIGINAL) The method of claim 12 wherein the sulfenate photosensitizer is parenterally administered to the target tissue in a formulation including the sulfenate photosensitizer and materials selected from the group consisting of pharmaceutically acceptable buffers, emulsifiers, surfactants, and electrolytes.

27. (ORIGINAL) The method of claim 26 wherein the formulation is parenterally administered to the target tissue in a concentration in a range of about 1 nM to about 0.5 M.

28. (ORIGINAL) The method of claim 12 wherein the sulfenate photosensitizer is enterally administered to the target tissue in a formulation including the sulfenate photosensitizer and materials selected from the group consisting of buffers, surfactants, emulsifiers, and thixotropic agents.

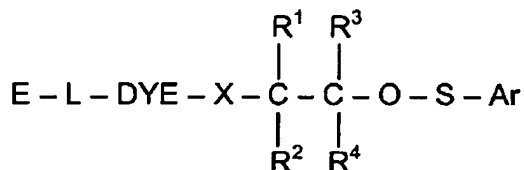
29. (ORIGINAL) The method of claim 12 wherein the sulfenate photosensitizer is topically administered to the target tissue in a formulation including the sulfenate photosensitizer and materials selected from the group consisting of liquid excipients and semisolid excipients.

30. (ORIGINAL) The method of claim 12 wherein the sulfenate photosensitizer is administered a form selected from the group consisting of an aerosol spray, a cream, a gel, and a solution.

31. (PREVIOUSLY PRESENTED) The method of claim 12 wherein the target tissue is selected from the group consisting of breast lesions, prostate lesions, neuroendocrine tumors, lung cancer, colorectal cancer, melanoma, vascular diseases, and brain lesions.

32. (CURRENTLY AMENDED) A method of performing a phototherapeutic procedure which comprises the steps of:

(a) administering to a target tissue in an animal an effective amount of sulfenate photosensitizers in a pharmaceutically acceptable carrier, the sulfenates having the formula



wherein E is a ~~target-binding unit~~ targeting univalent radical that is recognized by and binds to a target site on the tissue; L and X are independently selected from the group consisting of $-(\text{R}^5)\text{NOC}-$, $-(\text{R}^5)\text{NOCCH}_2\text{O}-$, $-(\text{R}^5)\text{NOCCH}_2\text{CH}_2\text{O}-$, $-\text{OCN}(\text{R}^5)-$, $-\text{HNC}(=\text{S})\text{NH}-$, and $\text{HNC}(=\text{O})\text{NH}-$; DYE is an aromatic or a heteroaromatic radical of cyanines which are conjugated azamethine polyene systems containing a cationic nitrogen atom at one end and a neutral, tertiary nitrogen at the other end; R^1 to R^5 are independently selected from the group comprising hydrogen, C1-C10 alkyl, C5-C10 aryl, C1-C10 polyhydroxyalkyl, and C1-C10 polyalkoxyalkyl; and Ar is an aromatic or heteroaromatic radical of benzenes, naphthalenes, naphthoquinones, diphenylmethanes, fluorenes,

anthracenes, anthraquinones, phenanthrenes, tetracenes, naphthacenediones, pyridines, quinolines, isoquinolines, indoles, isoindoles, pyrroles, imidazoles, oxazoles, thiazoles, pyrazoles, pyrazines, purines, benzimidazoles, furans, benzofurans, dibenzofurans, carbazoles, acridines, acridones, phenanthridines, thiophenes, benzothiophenes, dibenzothiophenes, xanthenes, xanthonenes, flavones, coumarins, or anthacyclines; and

(b) exposing said target tissues with the light of wavelength between 300 and 950 nm with sufficient power and fluence rate to cause necrosis or apoptosis of the said target tissue.

33. (CURRENTLY AMENDED) The method of claim 32 wherein E is a univalent radical selected from the group consisting of somatostatin receptor binding molecules, heat sensitive bacterioendotoxin receptor binding molecules, neurotensin receptor binding molecules, bombesin receptor binding molecules, cholecystekinin receptor binding molecules, steroid receptor binding molecules, and carbohydrate receptor binding molecules, and dihydroxyindolecarboxylic acid.